Occupational Outlook Quarterly

IN THIS ISSUE:

- **Social Security and How It Works**
- **Scientists and Engineers in American Industry**
- **Employment Outlook for Photographers**

Vol. 5 No. 1 February 1961

UNITED STATES DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
in cooperation with
VETERANS ADMINISTRATION

DEPOSITORY

Occupational Outlook Quarterly

UNITED STATES DEPARTMENT OF LABOR
Arthur J. Goldberg, Secretary

Bureau of Labor Statistics
Ewan Clague, Commissioner

This publication is issued to provide counselors with current information on employment trends and outlook, based primarily on the continuous research and statistical programs of the Bureau of Labor Statistics. It supplements and brings up to date information in the Occupational Outlook Handbook. It is prepared with the advice and assistance of the --

Bureau of Employment Security
Robert C. Goodwin, Director

Bureau of Apprenticeship and Training
W. C. Christensen, Director

Women's Bureau
Esther Peterson, Director

Bureau of Labor Standards
Arthur W. Motley, Director

of the

UNITED STATES DEPARTMENT OF LABOR

and in cooperation with the

VETERANS ADMINISTRATION

John Gleason, Jr., Administrator

The Occupational Outlook Quarterly is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Subscription price per year (4 issues) - $1.00 domestic, $1.25 foreign; per copy - 30 cents. Issued in February, May, September, and December.

Use of funds for printing this publication approved by the Director of the Bureau of the Budget (December 4, 1957).

Occupational Outlook Quarterly

UNITED STATES DEPARTMENT OF LABOR • Bureau of Labor Statistics

CONTENTS

Social security and how it works 1

Scientists and engineers in American industry 7

Employment outlook for photographers 15

Life insurance selling as a career for women 18

Employment outlook for industrial traffic managers 24

Salaries of white-collar workers, winter 1959-60 28

Counseling and guidance institutes, summer 1961 32

February 1961 Vol. 5, No. 1

Prepared under the supervision of James J. Treires in the Division of Manpower and Employment Statistics, Harold Goldstein, Chief. Authors are staff members of the Division unless otherwise noted.

Occupational Outlook Publications

A coordinated group of publications designed to provide counselors and students with accurate, up-to-date occupational information

Occupational Outlook Handbook

Comprehensive 800 page reference book covering...

- 600 Occupations
- 30 Major Industries
- Also available as

Occupational Outlook Report Series

Individually bound reprints for those with specific fields of interest

89 Career Pamphlets

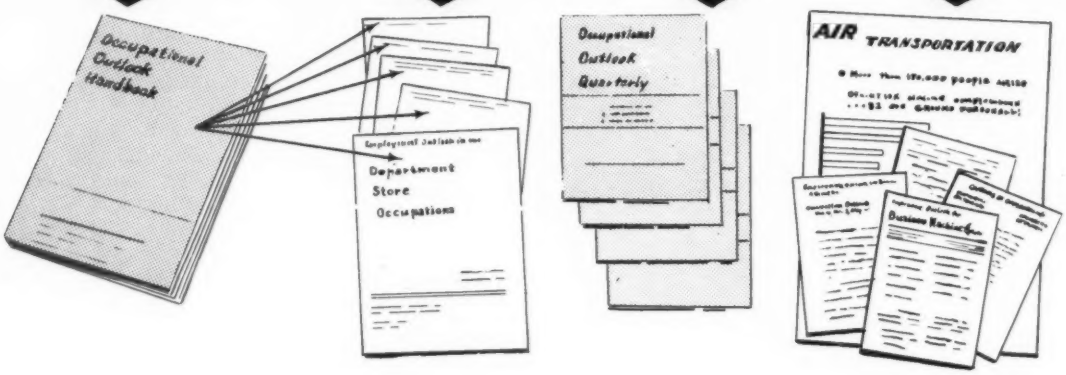
Occupational Outlook Quarterly

A Magazine to keep Handbook users up to date on...

- New Studies
- Occupational Trends

Wall Charts, Briefs, Reprints

Free materials presenting highlights of outlook studies.



ORDER FORM

Send order to the Superintendent of Documents, Washington 25, D.C., or to any of the following regional offices of the Bureau of Labor Statistics, U.S. Department of Labor:

341 9th Ave. New York 1, N.Y.	18 Oliver St. Boston 10, Mass.	105 West Adams St. Chicago 3, Ill.	1371 Peachtree St. NE. Atlanta 9, Ga.	630 Sansome St. San Francisco 11, Calif.

Enclosed find $_____ for:

_____ copies of the OCCUPATIONAL OUTLOOK HANDBOOK (1959 edition), Bull. No. 1255, at $4.25 each.

_____ subscriptions to the OCCUPATIONAL OUTLOOK QUARTERLY at $1.00 per year domestic; $1.25 foreign.

_____ copies of the _____ issue of the Occupational Outlook Quarterly at 30 cents per copy.
(Month Year)

Name _____ Street _____

City _____ Zone _____ State _____

25-percent discount on orders of 100 or more of any single publication.

(Please make check or money order payable to Superintendent of Documents; do not send stamps.)

OCCUPATIONAL OUTLOOK QUARTERLY

SOCIAL SECURITY AND HOW IT WORKS*

by Roy L. Swift
Bureau of Old-Age, Survivors, and Disability Insurance

Most young people have heard of "social security" and many high school students who work part time or on summer jobs may already have social security account numbers. These young people have started building economic security for themselves and for the families they will have in the future. Under the work-related social insurance program, provided in the social security law, workers prepare for the day when the regular pay check is no more--when they get too old to work, or become disabled; or if they should die leaving a family without their support.

A young widow at a social security office filing a claim for survivors insurance benefits for herself and her children

The Need for Social Insurance

The depression of the 1930's brought widespread unemployment to this country--at least 10 million Americans were out of work. Farmers were unable to sell their produce, and business was at a standstill. To meet this emergency, the President appointed a Committee on Economic Security to study the situation and make recommendations for dealing with the economic hazards of life which result in poverty and dependency.

In its studies of problems relating to economic security, the President's Committee found that loss of earnings, regardless of the cause, was a continuing and serious problem. The question, then, was how to spread earnings over a worker's lifetime. Since this could not be done on an individual basis, the social insurance idea of sharing the cost among many and thus spreading the risk seemed to be the answer.

At the end of 6 months, the President's Committee had completed a report which included economic data, on various topics, estimates of life expectancy and probable span of working years, experience of other countries, and draft legislation which they felt would meet the Nation's needs. In the 6 months which followed, Congress accepted many of the concepts developed in the Committee report and passed the Social Security Act. The President signed the bill on August 14, 1935. The first monthly benefits to people covered by the law were paid in 1940.

*This article is one of a series designed to give students and counselors a better understanding of the institutional background of the world of work.

[1]The Bureau of Old-Age, Survivors, and Disability Insurance is one of the four bureaus in the Social Security Administration of the U.S. Department of Health, Education, and Welfare.

Those who had a part in developing the legislation which later became the Social Security Act set out a few principles that are as important today as they were 25 years ago. They believed the program should be a compulsory contributory system for workers and employers alike, with benefits paid as a matter of right and without a test of need. It was felt that there should be a retirement test so that benefits would be paid only to people who were "retired" or were no longer working full time. The system also had to be wage related because only then could it be dynamic and include an incentive--the more a worker earns (up to $4,800 a year), the higher his level of benefits.

Who Is Covered

About 9 out of 10 working people are now building protection for themselves and their families under the Old-Age, Survivors, and Disability Insurance program. Almost 15 million people are receiving cash benefits totaling nearly a billion dollars a month. Now, 134 million people have social security account numbers, compared with the approximately 26 million who were registered when the program began 25 years ago.

Almost every kind of employment and self-employment is now covered under social security. In most instances, coverage is compulsory, but for certain groups it is elective in part at least. For instance, ministers and members of religious orders may elect to be covered. Employees of State and local governments and nonprofit organizations may be covered under elective arrangements of their States or employing organizations. Medical doctors and Federal employees under the Civil Service Retirement System are the only major groups not covered. Most of the increase in the number of persons with social security account numbers has resulted from amendments to the act which have extended coverage to additional occupations. The years in which the act was amended and the major changes made are shown in the following list.

Year	Major Changes in Social Security Act
1939	OASI broadened to provide benefits for the covered workers' dependents and survivors.
1950	Coverage extended to about 10 million additional persons including domestics, the self-employed, farm employees, employees of State and local governments, Federal employees not covered by Civil Service retirement, and employees of nonprofit organizations. Benefits increased.
1952	Monthly benefits for old-age and survivors insurance raised 12.5 percent.
1954	Coverage extended to about 10 million additional persons including self-employed farmers, persons self-employed as professional engineers, accountants, or architects, and funeral directors. Ministers and members of religious orders can elect coverage. Disability freeze established.[2] Benefits increased.
1956	Cash disability insurance benefits provided for disabled workers aged 50 to 65. Retirement age lowered for women. Coverage extended to all self-employed professional groups other than doctors of medicine. Disability benefits continued for disabled child after 18 if disability began before age 18.
1958	Benefits increased; benefits provided for dependents of disability insurance beneficiaries; amount of earnings subject to tax increased, and the tax rate raised to finance liberalizations.
1960	Cash disability benefits made payable to disabled workers at any age. Retirement test liberalized and amount of coverage required for benefits reduced. Benefits raised for some child beneficiaries. Parents who work for sons and daughters in a trade business covered.

Age is not the determining factor when applying for a social security card.

[2] The "disability freeze" is similar to a waiver of premiums on a private insurance policy. It protects the future benefit rights of the disabled worker by providing that the years when he was unable to work because he was disabled or his earnings were low shall not be counted when computing his insurance benefits.

All that is necessary is that the applicants be working or going to work in covered employment or be self-employed. One of the youngest persons on the account number rolls is a 15-day-old baby who appeared in a television commercial.

How the Program Works

To receive any benefits, a person must have worked in covered employment or self-employment for a certain length of time. The amount of work required is measured in "quarters of coverage." Starting with January, each 3-month period is counted as a quarter of coverage. Although older workers who retire before mid-1969 may be fully insured after working for fewer than 10 years, new workers will all have to have at least 10 years (40 quarters) of covered employment before they become fully insured. The lowest age at which a worker may retire and receive benefits is 65 for men, 62 for women. To receive disability cash benefits, the worker must have been employed during 20 out of the previous 40 quarters.

The exact meaning of a quarter of coverage is different, however, for different kinds of work. As an illustration, for most kinds of employment you get one quarter of coverage for each calendar quarter in which you are paid $50 or more in wages. If you are self-employed and have net earnings of $400 in a year, you get four quarters of coverage for that year. If your earnings from self-employment are less than $400 in a year, they do not count toward social security benefits.

The amount of the benefits paid depends on the worker's average earnings. The maximum amount on which social security taxes may be paid and which may be credited towards benefits is $4,800. The minimum benefit for a retired worker aged 65 or older is $33 a month, and the maximum retirement benefit is now $120. (A woman's monthly retirement benefit at age 62 can be as low as $26.40). The maximum payment to a family may be as high as $254 a month. Examples of monthly retirement, survivors, and disability benefit payments are shown in the tables.

The money to pay these benefits does not come out of the general revenues; it comes from the two social security trust funds built up by the workers and employers alike through their social security taxes--the Old-Age and Survivors Insurance Trust Fund and the Disability Insurance Trust Fund. At present, wage earners pay 3 percent of their earnings up to $4,800 as a social security tax, and employers pay a matching amount as their tax share, into the two trust funds. Self-employed persons pay a social security tax of $4\frac{1}{2}$ percent on earnings up to $4,800. One-half of 1 percent of the social security tax (3 percent) paid by the worker and employer and a proportional amount

Average monthly earnings after 1950	Disability, men and women, at age 50	Retirement benefits						
		Men and women, at 65	Woman, starting at age--			Couple, wife's benefit starting at age--		
			62	63	64	62	63	64	65
$50 or less...	$33.00	$33.00	$26.40	$28.60	$30.80	$45.40	$46.80	$48.20	$49.50
$75	45.00	45.00	36.00	39.00	42.00	61.90	63.80	65.70	67.50
$100	59.00	59.00	47.20	51.20	55.10	81.20	83.60	86.10	88.50
$150	73.00	73.00	58.40	63.30	68.20	100.40	103.50	106.50	109.50
$200	84.00	84.00	67.20	72.80	78.40	115.50	119.00	122.50	126.00
$250	95.00	95.00	76.00	82.40	88.70	130.70	134.60	138.60	142.50
$300	105.00	105.00	84.00	91.00	98.00	144.40	148.80	153.20	157.50
$350	116.00	116.00	92.80	100.60	108.30	159.50	164.40	169.20	174.00
$400	127.00	127.00	101.60	110.10	118.60	174.70	180.00	185.30	190.50

Table 2. Examples of survivors insurance payments

Average monthly earnings after 1950	Monthly payments				Single lump-sum death payment
	Widow, surviving child, or dependent parent	Widow and 1 child or 2 dependent parents	Widow and 2 children	Usual maximum family payment	
$50 or less	$33.00	$49.60	$53.10	$53.00	$99.00
$75	33.80	67.60	67.60	67.50	135.00
$100	44.30	88.60	88.60	88.50	177.00
$150	54.80	109.60	120.00	120.00	219.00
$200	63.00	126.00	161.60	161.60	252.00
$250	71.30	142.60	202.40	202.40	255.00
$300	78.80	157.60	236.40	240.00	255.00
$350	87.00	174.00	254.00	254.00	255.00
$400	95.30	190.60	254.00	254.00	255.00

of the self-employment tax is put into the Disability Trust Fund.

All benefits and the administrative expenses of the program are paid from the trust funds. Those amounts not needed for current obligations are invested in interest-bearing U.S. bonds and the interest is added to the trust funds. The social security tax rates are scheduled to increase so that by 1969 workers and employers will each be paying a $4\frac{1}{2}$-percent tax and the self-employed will be paying a $6\frac{3}{4}$-percent tax.

How a Claim Is Processed

After the worker or a member of his family applies for benefits at the social security district office or contact point, that office must obtain his earnings record. Earnings records are kept centrally in the new Social Security Building located at Woodlawn just outside Baltimore, Md.

Imagine, if you can, keeping quarterly earnings records currently posted for nearly everyone (9 out of 10 workers) in the labor force in the United States. The pioneer work done by the Bureau of Old-Age and Survivors Insurance in solving this as well as other record-keeping problems is a story in itself.

Through a special speed system of filing, records for any one of the 155 million names on file in this office can be located within one or two minutes

When a person applies for a social security account number, the form he fills out is used to set up an individual record of his earnings. Eventually, the benefits payable to him and his dependents when he retires, or becomes disabled, or to his family in case of his death, will be figured from that earnings record.

Four times a year, the Nation's employers pay the social security taxes from their employees' wages and also their own matching share of those taxes. The District Director of Internal Revenue receives the reports and the money, and after review, forwards the reports to the Social Security Building where records are kept centrally. The earnings reported for each person quarterly plus identifying information are put on a reel of magnetic tape. Information for approximately 75,000 people can be put on a reel about $10\frac{1}{2}$ inches in diameter. This summary record is available in case a person should ask for a statement of his earnings during a year and for use in determining a claim for benefits when a person applies at his social security district office.

After the social security district office gets the earnings record and processes the claim, it is forwarded to a payment center where it is reviewed to be sure all provisions of the law are fulfilled and that the claimant is receiving all to which he is entitled. There are seven payment centers--Baltimore, Birmingham, Chicago, Kansas City, Philadelphia, New York City, and San Francisco. The payment center notifies the claimant of the decision in his case (whether qualifying requirements are met) and the amount of the monthly benefit due him. In the event that a claimant is not satisfied with the decision made in his particular case, the law provides that he may request reconsideration and review of his claim.

Social security benefits may not be enough to support a person entirely when his regular income is cut off, especially if his earnings from work under social security have not been high or if he has not worked steadily on jobs under social security. But these benefits do provide

This electronic data processing equipment can bring 60,000 accounts up to date every hour

an economic base, something which a person may build on, if possible, with other kinds of savings such as insurance and homeownership.

Although older persons are most often helped by social security benefits, many young are also aided, as the following actual cases illustrate.

A 20-year-old Pennsylvania youth, the youngest disabled worker in the United States to become eligible for social security disability benefits, received his first $77 monthly disability check in December 1960. He was stricken with polio in September 1959. The disease left him with paralysis of the muscles of both legs so that even after he was able to breathe without the help of an iron lung, he spent nearly $5\frac{1}{2}$ months in the hospital. Because of his condition, he is unable to do any substantial work now.

As a result, in addition to his monthly cash disability benefit, this young man is getting vocational training--learning to be a tailor. The Pennsylvania Vocational Rehabilitation agency plans to help him establish his own business in his own hometown. Physical therapy is helping him learn to get around a bit with braces and crutches. All disabled

582018 O - 61 - 2

people who apply for social security disability benefits are referred automatically to the State Vocational Rehabilitation agency for possible services.

A young man who has had a very successful career in sports was 3 years old when his father died in military service in June 1945. His mother received social security survivor benefits for herself and her four minor children starting in June 1945 through September 1960, when the youngest reached age 18. The mother says that the social security benefits she and her children received enabled her to maintain a good standard of living and to properly care for and educate her family.

Details about the program may be obtained from any of the 584 social security district offices located throughout the United States. These offices are listed in the local telephone directory. In addition to these offices, there are approximately 3,541 contact and resident stations. A field representative travels on a regular schedule to outlying communities to take claims and answer questions people have about their social security. At the resident station, the field representative is on hand at stated times. Thus, areas that are far removed from the district office are served. Arrangements can also be made to have a representative call at the home of a person who is unable to come to the office.

1961 FEDERAL SERVICE ENTRANCE EXAMINATIONS

Applications for the 1961 Federal Service Entrance Examination are now being accepted by the Civil Service Commission. This examination is designed primarily as an avenue through which young people of promise may enter the Federal service upon completion of their college educations. Persons who qualify are considered for trainee positions in some 60 different occupational fields. These positions are in various Federal agencies located in Washington, D.C., and throughout the United States. There may also be a few openings in foreign countries.

The examination is open to college juniors, seniors, and graduates, regardless of major study, and to persons who have had equivalent experience in administrative, professional, technical, or other responsible work. Starting salaries will be either $4,345 or $5,355 a year depending on the qualifications of the candidate. Many liberal "fringe benefits" are included.

Written tests are scheduled for April 15 and May 13, 1961, and will be given in many cities throughout the country. Applications for these tests must be filed by March 30 and April 27, 1961, respectively.

SCIENTISTS AND ENGINEERS IN AMERICAN INDUSTRY

by William L. Copeland

The current interest in the Nation's resources of engineering and scientific personnel reflects the importance of these highly trained people to the country's defense and technological progress. This relatively small group, representing less than 3 percent of all workers in American industry in early 1959, includes not only the few engaged in basic research, but also the considerably larger number of scientists and engineers who develop, from scientific advances, economically feasible innovations of value to the national defense and welfare.

To assemble up-to-date information about the extent to which private industry uses scientists and engineers, a survey was conducted for the National Science Foundation by the U.S. Department of Labor's Bureau of Labor Statistics, early in 1959. The information provided on the numbers employed in each occupation and on the distribution of scientists and engineers in industry will be helpful to young people considering careers in these fields.[1]

Research and development is a major activity of scientists employed in private industry

Employment by Occupation

The total number of scientists and engineers in private industry was probably in the neighborhood of 800,000 in January 1959. This rough approximation includes an estimated 764,000 scientists and engineers employed by companies within the coverage of the survey. In addition, probably 30,000 to 40,000 scientists and engineers were self-employed or were on the staffs of the firms--chiefly small ones--outside the scope of the survey.

Engineers numbered 615,000 in January 1959, or 80 percent of the total of 764,000. The number of scientists was 149,000, only about one-fourth as great as the number of engineers. Nearly 50 percent (72,000) of the scientists were chemists (table 1).

The estimate of 764,000 scientists and engineers represents an increase of 5 percent over the comparable figure of 730,000 for January 1958. Employment of engineers likewise increased by 5 percent over the year. Since members of this profession constituted about 80 percent of all scientific and engineering personnel on industry payrolls, the increase in their employment naturally dominated the overall trend. Relatively small employment increases were recorded also for chemists and medical scientists (3 and 5 percent, respectively). In contrast, the number of mathematicians in industry rose by 17 percent and the number of physicists by 11 percent, probably reflecting rapid extension in the utilization of these sci-

[1] The report is entitled "Scientific and Technical Personnel in American Industry" (NSF 60-62) and is available from the Superintendent of Documents, Washington 25, D.C., at 45 cents a copy.

TABLE 1. Scientists and engineers, by occupation group, January 1958 and January 1959, and percent change

Occupational group	Number		Percent change
	January 1958	January 1959	
All groups.....	730,500	764,100	4.6
Engineers ..	587,400	615,400	4.8
Chemists	69,500	71,500	2.9
Physicists	13,400	14,900	11.4
Metallurgists...	10,600	11,400	7.3
Geologists and geophysicists.	15,400	14,800	-4.1
Mathematicians.	9,600	11,300	16.9
Medical scientists....	6,700	7,000	4.5
Agricultural scientists....	5,000	5,600	11.3
Biological scientists....	5,000	5,500	11.4
Other scientists	7,800	6,600	-14.7

NOTE: Totals and percents have been calculated on the basis of unrounded figures and therefore may not correspond exactly with those indicated by the rounded figures shown.

entists in activities other than research and development, as well as their increased employment on research and development (R&D) programs.

Geologists and geophysicists and "other" scientists were the only occupational groups in which employment decreased during the year. The number of geologists and geophysicists in industry declined by 4 percent, owing chiefly to curtailment of exploration activities in the petroleum industry. In the absence of information as to the types of personnel included in the "other" category, the downward trend shown for this group is difficult to interpret; it is possible that it was due in part to changes in personnel classifications.

Distribution Among Major Industries

The industrial pattern of employment of scientists and engineers was much the same in early 1959, as that found by two previous surveys.[2] The aircraft, electrical equipment, chemical, and machinery industries remained the largest employers of such personnel, accounting for about 45 percent of the total number covered by the current survey.

Engineers, though employed in significant numbers in a great variety of industries, were again found to be concentrated in technologically complex ones--above all in aircraft, electrical equipment, and machinery, which together employed 37 percent of the estimated total number of engineers in January 1959. The concentration of chemists in the chemicals and allied products industry, of physicists and mathematicians in the electrical equipment and aircraft industries, of metallurgists in the primary metal industries, of geologists and geophysicists in the petroleum industry, and of life scientists in the pharmaceutical segment of the chemicals and allied products industry were all much the same as found before.

Another measure of the extent to which different industries utilize scientists and engineers is the proportion such personnel constitute of total employment. In the industries covered by the survey, scientists and engineers represented only about 3 percent of the total employed work force in January 1959. By contrast, in the aircraft industry, 1 out of every 9 employees (11 percent) was a scientist or engineer. In several other science-based industries--electrical equipment, petroleum products, and professional and scientific instruments--the ratio was about 1 out of 14 (7 percent). At the other extreme, among the industries for which separate figures are shown, were food and textile-mill products, where scientists and engineers made up a very small proportion of the work force, 0.7 and 0.3 percent, respectively (table 2).

[2]National Science Foundation, Science and Engineering in American Industry--Report on a 1956 Survey (1959), price 70 cents, and Science and Engineering in American Industry--Final Report on a 1953-54 Survey (1956), price 70 cents. For copies, write the Superintendent of Documents, Washington 25, D.C.

TABLE 2. Scientists and engineers as percent of total employment, by industry, January 1958 and January 1959

Industry	Jan. 1958	Jan. 1959
All industries	2.6	2.7
Food and kindred products	0.7	0.7
Textile-mill products and apparel	.3	.3
Paper and allied products	1.7	1.7
Chemicals and allied products	8.6	9.0
Petroleum products and extraction	6.9	7.2
Stone, clay, and glass products	1.8	1.8
Primary metal industries	2.5	2.6
Fabricated metal products and ordnance	3.3	3.0
Machinery (except electrical)	3.9	4.2
Electrical equipment	7.6	7.6
Aircraft and parts	9.7	10.7
Professional and scientific instruments	6.4	6.9
Other manufacturing industries	1.3	1.4
Construction	3.1	3.4
Transportation and other public utilities	1.2	1.3
Other nonmanufacturing industries	1.3	1.4

NOTE: Employment estimates used in this table were derived from the survey, and hence apply to the same industry categories as the estimates of scientists and engineers.

Companies Employing Scientists and Engineers

Scientists and engineers are employed in companies of all sizes, from the very big--where they have worked in large numbers for a long time--to the very small.

An estimated 47,500 companies within the scope of this survey employed scientists and engineers in January 1959. Chart 1 shows how these were distributed by size group, and compares this distribution of companies with that of scientific and engineering employment. Small firms with a work force of less than 100 represented a majority of the companies employing scientists and engineers but employed less than a fifth of the estimated total scientists and engineers. In contrast, the few companies with 5,000 or more employees employed over half of the total number of scientists and engineers (chart 2).

Electrical equipment manufacturing had the highest proportion of companies employing scientists and engineers (52 percent). In other industries for which separate figures are shown, the proportion of companies with scientific or engineering personnel ranged from 44 percent in chemicals to 6 percent in transportation and other public utilities.

Distribution by Size of Company

As we have seen, most of the jobs for scientists and engineers are in big companies--chiefly because large organizations predominate in practically all phases of industrial activity. An estimated 53 percent of all the scientists and engineers covered by the survey worked for companies with 5,000 or more employees in January 1959. The proportion employed by companies in the top size group (5,000 or more employees)

An engineer measuring fuel flow into test engines by means of a calibrated burette

was well over 90 percent in motor vehicles and aircraft; close to 75 percent in primary metals; and over 60 percent in chemicals, petroleum, and electrical equipment.

By contrast, in the "other nonmanufacturing" industry group, which included many small engineering and architectural service firms, radio and television broadcasting stations, and medical and dental laboratories, only 23 percent of the scientists and engineers were in organizations having as many as 5,000 employees. And in the construction industry, with its great number of small contracting firms, the proportion was only 8 percent.

This concentration of scientists and engineers in large manufacturing companies exceeded that of employment in general (chart 3). Whereas about 40 percent of all workers on the payrolls of American manufacturers in January 1959 were in companies with 5,000 or more employees, the corresponding figure for scientists and engineers was 63 percent.

An engineer determining the strength of a small wire

Nevertheless, small firms also utilized a significant number of scientists and engineers. Of the engineers employed in January 1959, 18 percent worked for firms with fewer than 100 workers. Medical scientists formed the only scientific profession where the proportion working for very small firms was higher than this (35 percent); most of this group were in small medical and dental laboratories and, secondarily, in small drug firms. Least often employed by small organizations were physicists and mathematicians, of whom only about 5 percent were in firms with fewer than 100 employees. As indicated in the following section, both of these scientific groups were employed predominantly in research and development work--chiefly in very large companies in the aircraft, electrical equipment, and other industries.

Number in Research and Development and Other Activities

In any attempt to assess personnel needs and resources in engineering and scientific occupations, information on the functions performed by such personnel in industry is of basic importance. The companies in this survey were therefore asked to report not only the total number of scientists and engineers employed but also how many were primarily engaged in each of the six following categories of activities: Research and development; management and administration of research and development; management and administration of other activities; exploration; production and operations; and all other activities.

More engineers and scientists did work connected with production and operations than with any other activity. Approximately two-fifths of those on industry payrolls in January 1959 were employed primarily in such production and operations work as inspection, quality control, and design, analysis, and testing which are not a part of research and development. The next largest group--31 percent--were chiefly engaged in conducting research and development. In addition, 5 percent spent

Chart 1. A Few Large Companies Employ Most Scientists and Engineers . . . .

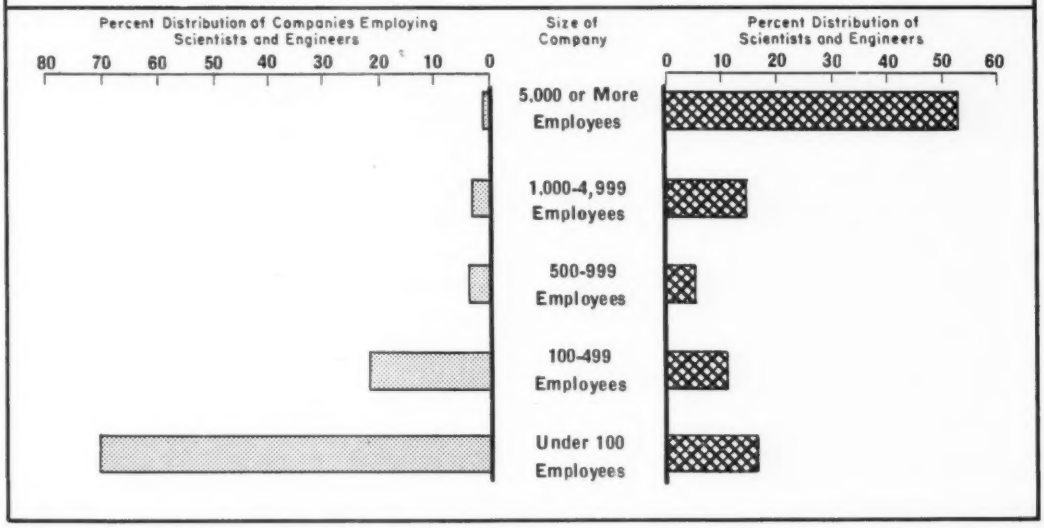

Percent Distribution of Companies Employing Scientists and Engineers
80 70 60 50 40 30 20 10 0
Size of Company
Percent Distribution of Scientists and Engineers
0 10 20 30 40 50 60
5,000 or More Employees
1,000-4,999 Employees
500-999 Employees
100-499 Employees
Under 100 Employees

Chart 2. Most Large Companies but Only Minority of Small Ones Employ Scientists and Engineers....

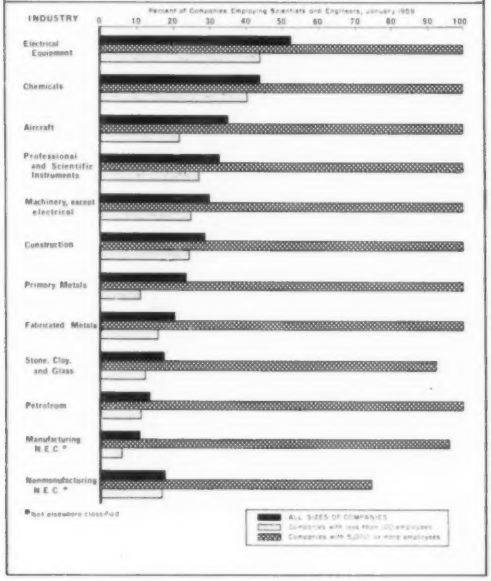
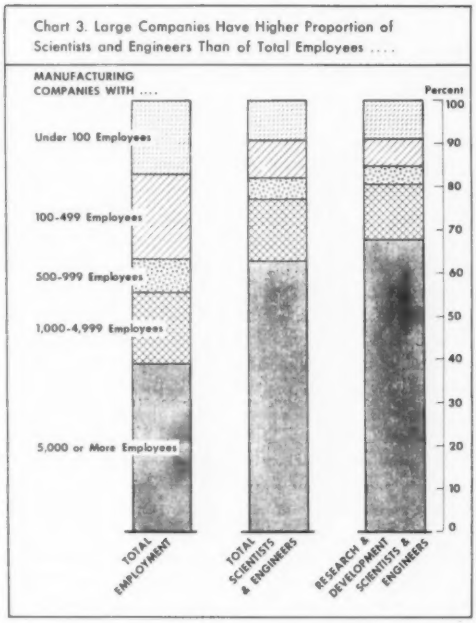


Chart 3. Large Companies Have Higher Proportion of Scientists and Engineers Than of Total Employees . . . .



most of their time in the administration of research and development, and 9 percent in the administration of other activities. The remaining 17 percent were engaged in a variety of activities, including exploration, technical sales, and technical service.

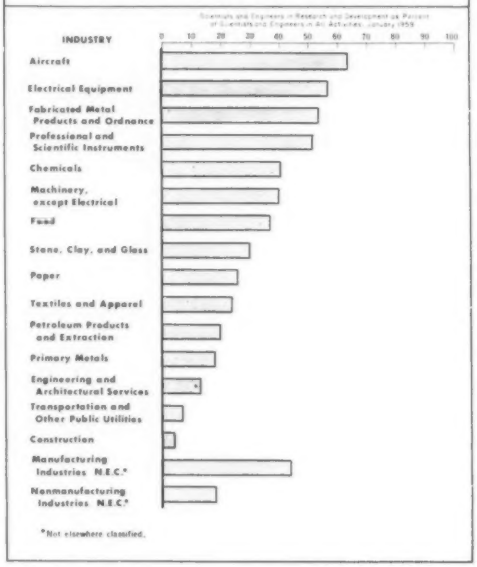
Physicists were the occupational group most concentrated in R&D activities. Seventy-five percent of them were primarily engaged in conducting research and development, and another 10 percent were administrators of such programs. The conduct or administration of research and development projects was also the chief function of a majority of the biological scientists (65 percent), mathematicians (61 percent), and chemists (55 percent). Among engineers, the proportion conducting or administering research and development was sizable also (33 percent), but not as large as the group engaged in production and operations (42 percent, not counting administrators).

The large majority (75 percent) of the geologists and geophysicists were engaged in exploration, chiefly for petroleum resources but to some extent also for other minerals. Few members of these professions (only 4 percent) were employed on projects within the definition of research and development.

Relatively few (13 percent) of the medical scientists were engaged in research and development. Fifty percent of the medical scientists in the survey were in "other" activities; this included substantial numbers of pharmacists employed as detail men for pharmaceutical firms. The second largest group of medical scientists (32 percent) were engaged in production and operations work, including testing activities in medical and dental laboratories.

The wide differences among industries in the proportions of scientists and engineers employed in research and development and other activities are shown in chart 4. Aircraft manufacturing utilized more of its scientific and engineering personnel in research and development than did any other industry

Chart 4. The Highest Proportion of Scientists and Engineers in Research and Development Was in the Aircraft Industry ....



(64 percent). This industry's tremendous R&D projects are well known, and, in the case of manned aircraft at least, development work typically continues throughout the manufacturing process. The proportion of scientists and engineers in R&D work was also over 50 percent in three other industries (electrical equipment, fabricated metals, and professional and scientific instruments), and about 40 percent in chemicals and nonelectrical machinery. In industries where relatively few scientists and engineers were in R&D work--most notably primary metals and all the nonmanufacturing industry groups--the type of activity employing the most scientists and engineers was production and operations. In four of these industry groups--stone, clay, and glass; primary metals; construction; and transportation and other public utilities--the proportion of scientists and engineers in management and administration was also high.

In general, large companies utilize relatively more of their scientists and engineers in research and development

than do small ones. In companies with 5,000 or more employees, 40 percent of the scientists and engineers were conducting R&D activities, compared with only 18 percent in firms having fewer than 100 employees. Conversely, small firms utilized relatively more scientists and engineers in production and operations and in managerial work than did large companies.

Engineers Holding Degrees

It has long been known that a good many persons holding professional positions as engineers had not completed formal college training. In industry as a whole, about 78 percent of the engineers held college degrees of some kind in January 1959. The percentage varied considerably among industries, however (table 3). In the petroleum and chemical industries, better than 9 out of every 10 engineers held college degrees. Chemical engineering work, in which many of these engineers were employed, requires a highly technical background in both chemistry and engineering. The relatively high proportions of engineers with degrees in the electrical equipment and primary metals industries were similarly due, in part, to the specialized requirements for work in electronic and metallurgical engineering. On the other hand, in the more mechanical industries, such as machinery and aircraft, the proportion of engineers with degrees (about 7 out of 10) was below the all-industry average.

Another interpretation of these findings is, of course, that a significant proportion of engineers--as high as 3 out of every 10 in 2 of the industries--have obtained professional status without a college degree. Qualified as a rule through long, progressive experience in their own specialties, these workers are an important part of the country's engineering manpower resources. However, they are generally considered to have less breadth of background and more limited transferability than college-trained engineers.

TABLE 3. Number and percent of engineers holding bachelor's or higher degree, by industry, January 1959

Industry	Total engineers	Engineers with degrees	
		Number	Percent of total
All industries	615,400	482,300	78.4
Food and kindred products	4,100	3,500	85.1
Textile-mill products and apparel	3,700	3,100	85.6
Paper and allied products	6,400	5,300	82.8
Chemicals and allied products	36,600	34,100	93.1
Petroleum products and extraction	27,900	26,600	95.3
Stone, clay, and glass products	7,100	5,400	76.3
Primary metal industries	23,300	19,900	85.3
Fabricated metal products and ordnance	31,800	25,100	79.0
Machinery (except electrical)	62,200	44,000	70.8
Electrical equipment	81,300	70,700	87.0
Aircraft and parts	83,100	59,700	71.8
Professional and scientific instruments	19,000	13,800	72.4
Other manufacturing industries	47,100	33,900	72.0
Construction	43,000	31,800	74.0
Transportation and other public utilities	33,700	28,300	84.1
Engineering and architectural services	53,500	41,400	77.4
Other nonmanufacturing industries	51,600	35,500	68.8

NOTE: Totals and percents have been calculated on the basis of unrounded figures and therefore may not correspond exactly with those indicated by the rounded figures shown.

Employment of Scientists and Engineers in 1960

Prelimiary results from the latest survey of scientists and engineers indicate that their employment in industry rose nearly 7 percent between January 1959 and January 1960. This compares to the 5-percent rise from 1958 to 1959.

The proportionate increase from 1959 to 1960 was greatest for "other physical scientists," but the growth in number of engineers greatly exceeded that of other occupational groups.

More than 800,000 scientists and engineers were employed in January 1960, compared to 764,000 in January 1959, by companies within the scope of the two surveys.

Industrial firms had a net increase of approximately 40,000 engineers between January 1959 and 1960. This rise in engineering employment represented a much greater growth than occurred during 1958. Employment of scientists rose by more than 10,000 from 1959 to 1960.

Greatest proportionate growth occurred in some small fields of specialization, but the vast majority of scientists added to the work force were chemists.

Nearly 40 percent of the engineers and scientists were engaged in research and development activities (including administration of R&D programs), according to preliminary estimates from the 1960 survey. This represents a significant increase over R&D employment in the previous year, and is undoubtedly related to the greater-than-average growth in scientific employment during the 1959-60 period.

Two industries--electrical equipment and aircraft and parts--each employed around 100,000 scientists and engineers in January 1960. Other manufacturing industries employing more than 50,000 scientists and engineers included chemicals and allied products, machinery, and petroleum products (including extraction).

Employment of scientists and engineers in industry, by occupational group, January 1960

(Preliminary data)

Occupational group	January 1960		Percent change, 1959-60
	Number	Percent	
Total scientists and engineers	815,500	100.0	6.7
Engineers	656,300	80.5	6.6
Scientists.....	159,200	19.5	7.1
Chemists.....	76,900	9.4	7.6
Other physical scientists	57,100	7.0	9.0
Life scientists.....	18,800	2.3	3.9
Unclassified scientists.....	6,400	.8	-3.0

EMPLOYMENT OUTLOOK FOR PHOTOGRAPHERS

by Sheldon H. Luskin

Photography is both an artistic and a technical occupation, involving much more than taking clear pictures of people and views. Some photographers produce pictures which are so beautifully composed, otherwise artistic, and striking that they are recognized as works of art. Skillful portrait photographers take pictures which are not only natural looking and attractive but express the personality of the individual. In taking pictures for advertising and other commercial purposes, the photographer has to understand how the picture is to be used and plan to take it in such a way as to achieve the desired result. Photographing sports and other news events also calls for special photographic skills, as do other branches of photographic work.

Nature of Work

In taking pictures, photographers use a variety of cameras--miniature (35mm), still, motion picture, and others. The cameras may be equipped with telescopic, wide-angle, or other special lenses and with different types of light filters, to enable the photographer to get the particular effects desired in each picture. Photographers also utilize many kinds of film and must know which to use for each type of picture, different lighting conditions, cameras, and filters. When taking pictures indoors or after dark, they use lighting equipment--flash bulbs for some pictures, flood and other special lights and reflectors for others. In addition, photographers must understand and be able to carry through the chemical and other processing by which pictures are developed, enlarged, and printed. In small shops and photographic departments, the photographer often has to do all this technical work. This may be required also in large studios, but, as a rule, such studios employ photographic technicians to do the needed technical work. The techniques involved in taking motion pictures differ greatly from those used in still photography and, therefore, most photographers work in only one field.

A photographer taking pictures of a housing area

Professional photographers may either specialize in one kind of work or engage in almost all kinds of photography. The most common photographic specialties are portrait work, commercial photography, and industrial photography. Portrait photographers work mostly in

*This article is one of a series of reports on fields of work which were not covered in the 1959 edition of the Occupational Outlook Handbook. It is part of the Bureau's continuing program of occupational outlook research.

their own studios, though they sometimes go to people's homes or other places to take pictures. Commercial photographers generally take pictures for use in advertising real estate, furniture, food, apparel, and other items, but they may also do other kinds of photographic work. Industrial photographers work for a single firm or company, mainly taking pictures that are used in company publications and for advertising company products or services. They may take motion pictures of workers on the job and of equipment and machinery operating at high speed, which are used to improve work methods or to increase production. Other photographic specialties include press photography (combining a "nose for news" with photographic ability); aerial photography; educational photography (preparing slides, film strips, and movies for use in the classroom); and scientific photography (taking pictures for use in scientific research or technical journals. In addition, some photographers write for trade and technical publications, teach photography in schools and colleges, act as representatives of photographic equipment manufacturers, manage photofinishing establishments, sell photographic equipment and supplies, produce documentary films, or do freelance work.

Where Employed

About 60,000 photographers were employed in mid-1960. Roughly half of them worked in portrait or commercial studios--many in business for themselves, the rest as salaried employees. In addition, sizable numbers were employed in industry; some worked for Federal, State, and local government agencies; and others operated camera stores or worked on the staffs of newspapers and magazines. Still others worked as freelance photographers, taking pictures of many kinds and selling them to advertisers, magazines, and other customers.

Photographers work in all parts of the country, in small towns as well as large cities. They are, however, mainly concentrated in States which are heavily populated--New York, Pennsylvania, California, Ohio, and Illinois--and which also have great numbers of businesses and industrial establishments.

Training, Other Qualifications, and Advancement

After graduating from high school, young people may prepare for work as professional photographers through 2 or 3 years of on-the-job training in a portrait or commercial studio. A trainee generally starts by working in the darkroom, where he learns how to develop and print film and to do other related work such as making enlargements. Later, the trainee may set up lights and cameras or otherwise assist an experienced photographer in taking pictures. Photographic training can also be obtained in many colleges and universities, trade schools, and technical institutes, or by taking correspondence school courses. Several colleges and universities offer 4-year curriculums leading to a bachelor's degree with a major in photography. These curriculums include liberal arts courses as well as courses in professional photography. A few institutions have 2-year curriculums leading to a certificate or an associate degree in photography.

The kind and amount of training obtained greatly influence the kind of photographic work for which a young person can qualify. For example, considerable formal training, plus some photographic experience, is usually needed to enter the fields of industrial, news, or scientific photography. Amateur photographic experience may be helpful to the young person considering a career in this field.

The prospective photographer should have manual dexterity and some artistic ability. In addition, a pleasant personality, the ability to put people at ease, and a good business sense are needed by photographers who expect to go into business for themselves. Imagination and originality are particularly important for those aspiring to careers in commercial photography or freelance work. For news or press photography,

a knowledge of news values and the ability to act quickly in emergencies are important.

Beginning photographers often work in established studios until they accumulate the capital and experience needed to start their own businesses, although some open their own portrait or commercial studios immediately after completing their training.

Employment Outlook

Employment opportunities are expected to be favorable through the mid-1960's for talented and well-trained photographers. Such photographers should find work readily in most parts of the country. People with less ability and training are likely to encounter keen competition and also to have limited chances of advancement.

The portrait and commercial fields of photography were crowded in 1960, and this situation is likely to persist. These fields may be easily entered, since a photographer can go into business for himself without a large financial investment. Moreover, the available supply of portrait and commercial photographers is continually enlarged by people who are employed in other occupations but who take pictures in their spare time. Less competition is likely in industrial photography and other fields which require a thorough knowledge of photography as well as other technical or scientific training.

Over the long run, a moderate increase in employment of photographers is expected with the growth in population. The movement of families to the suburbs will offer some opportunities for photographers to open portrait studios in the new shopping centers. Other factors which point toward an increase in the employment of photographers are the increasing use of photographs in advertising, the expected growth in the number of film strips and motion pictures produced for use of business and industry, civic organizations, and government; and continued research and development in the missiles field. Since a large part of this work will be done by people on the staff of manufacturing firms, employment of industrial photographers is likely to rise at a more rapid rate than that of either portrait or commercial photographers. Nevertheless, as in the past, it is likely that the greatest number of job openings will continue to be in the much larger fields of portrait and commercial photography, because of the need to replace those photographers who transfer to other fields of work, retire, or die.

Earnings and Working Conditions

Beginning photographers generally earned from $60 to $80 a week in mid-1960, according to limited information from various private sources. Many photographers with established reputations earned much more. For newspaper photographers without previous experience and employed on daily newspapers having contracts with the American Newspaper Guild, minimum salaries were usually between $50 and $80 weekly. Minimum rates for photographers with some experience (usually 4 to 6 years) ranged from $105 to $150 a week on most dailies organized by the Guild. The entrance salary for inexperienced photographers in the Federal Civil Service was $3,500 a year; for those with at least 1 year of routine photographic experience, it was $3,760 a year. In addition, the salary schedule provides for periodic increases above this amount. Most experienced photographers in the Federal Government earn $4,345 or more a year; only a few earn over $10,000 annually. Self-employed photographers generally earn more than salaried workers, but their earnings are greatly affected by business conditions, their workweek, and many other factors.

Photographers with regular jobs usually work the standard 5-day, 40-hour week and receive benefits such as paid holidays, vacations, and sick leave. Photographers in business for themselves frequently work longer hours, especially during their busy seasons. Working conditions are generally pleasant. Freelance, press, and commercial photographers may be required to travel frequently.

LIFE INSURANCE SELLING AS A CAREER FOR WOMEN

by Sarah F. Leiter
Women's Bureau

By every standard, life insurance is a vast and still expanding industry. Its activities reach into every community, its contribution to the financial security of individuals and families is widespread, and its assets provide one of the largest sources of investment funds.

In 1959, an estimated 127 million policyholders owned life insurance amounting to $600 billion. In the same year, more than 1,400 private life insurance companies paid $7.5 billion in life insurance benefits to policyholders and their beneficiaries. These companies ranged in size from very small ones doing business in a fairly restricted area to very large ones with agency outlets throughout the country. An estimated 450,000 persons, exclusive of part-time agents, were employed in the industry in 1959, reflecting an employment gain of more than 70 percent since the end of World War II.

Women in Life Insurance

Women have been but a small proportion of the life insurance underwriters, as the agents[1] are often called. Among the relatively few women in this field, there are many who are outstandingly successful. About 6,000 full-time women underwriters were selling life insurance in 1956. They comprised 3 percent of all full-time agent personnel.

About 44 percent of the full-time women underwriters were "ordinary" agents, selling insurance issued in units of $1,000 or more with premiums payable annually, quarterly, or monthly. The other 56 percent were "combination" or "debit" agents. Debit agents sell insurance, which is usually issued in amounts of less than $1,000, and collect the weekly or monthly premiums at the policyholder's home. Many debit agents sell both types of insurance, which is why they are often called combination agents.

Although women already in the field are enthusiastic about this career, few women planning their careers seem to consider this area of work. Most companies have no formal objection to women agents, but actual recruitment is done largely by local agency managers, few of whom make any effective effort to recruit women underwriters.

Nature of Work

Life underwriters or agents are the field representatives of the insurance companies to which they are under contract, either directly or through a general agent. Their particular role in the industry is to sell life insurance. Their many related activities and responsibilities are for the ultimate purpose of improving the volume and quality of sales. Life underwriters frequently sell health insurance as well. (Life insurance companies handle about four-fifths of the health insurance business.) Many life insurance agents, if their companies permit, also sell casualty insurance, generally as an added service to their clients.

Agents spend many of their working hours dealing with people in their homes or places of employment. They must know and be able to describe in nontechnical and understandable terms the variety of policies their companies offer and to counsel their clients regarding the suitability of different policies. They

[1] The two designations are used interchangeably in this statement as they frequently are in the industry, although the term "underwriter" also applies to home office employees who review life insurance applications to determine whether they meet the company's standards of insurability.

A woman life underwriter discusses a life insurance program with a husband and wife in their home

try to develop a good personal relationship with their prospective purchasers, since the design of a suitable insurance plan often depends on an intimate knowledge of the client's financial status and requirements.

The underwriter helps the client complete the insurance application form, collects the initial premium, arranges for a medical examination if required, and delivers the policy to the client. Combination or debit agents also spend part of their time collecting weekly or monthly premiums.

Agents prepare reports, keep records, develop and contact prospects, and send out promotional literature. They may also plan insurance programs of a more difficult nature, including estate creation, conservation, and distribution, business insurance; group insurance; and pension coverage. They usually provide related services to their clients, such as assisting them with the settlement of benefit claims, changing beneficiaries, converting policies, and similar matters.

Where Employed

Since selling life insurance is a service to people, underwriters are found in all parts of the country, with large numbers of them in States and areas having great concentrations of population.

An analysis of the geographic distribution of women members of the National Association of Life Underwriters (NALU) showed an unusually high proportion of women agents in the South (42 percent), particularly the South Atlantic States, and proportions lower than might be expected in the Northeast (18 percent) and West (14 percent). These agents sell life insurance in large cities and small towns, in urban centers, and in suburban or rural areas. About two-thirds of the women underwriters surveyed limited their selling activities to city and suburban areas, but a few (3 percent) handled rural business exclusively. The others had both rural and urban clients.

Some companies have branch offices which serve a specified territory, and are run by salaried company managers. Others contract out their selling, servicing, and related functions to independent agencies owned by general agents in business for themselves. Most general agents, however, receive financial backing and supervision in varying degrees from the insurance companies. Branch managers and general agents--sometimes with the help of assistants--recruit, train, and supervise the field staff (including underwriters) and are responsible for the operations of the agencies.

Some of the smaller companies direct all their operations from their home offices. Underwriters under contract to these companies report directly to the home office, unlike the far greater number of underwriters who work through the agency system. A small number of life insurance underwriters are under contract to insurance brokerage firms which handle business for more than one company.

Qualifications

Too much emphasis cannot be placed on the importance of personal traits, interests, and aptitudes in the success of the life underwriter. Education, training, and hard work are not enough, according to the women underwriters surveyed. Facility for speaking is important because there is no product to demonstrate, no other means of making a sale. Self-discipline, ability to organize, and capacity for hard work are essential, since agents are their own bosses. Other characteristics regarded as necessary are agressiveness, integrity, ambition, patience, and persistence.

Life underwriters must acquire a thorough knowledge of life insurance and related fields in order to provide expert counseling and inspire confidence in their advice.

Educational requirements are highly flexible. Many companies seek college graduates to train as career underwriters, but none limits recruitment to this group. A young woman looking ahead to a career in selling life insurance will find insurance courses offered in many universities. She will also find that courses in such related fields as economics, government, sociology, psychology, and business law are helpful.

There is no preemployment training, no educational major which can completely prepare a person for a career as a life insurance underwriter. Recruiting officials, therefore, may look for well-educated but not necessarily specifically educated applicants. The NALU college women included in the survey reported a great variety of educational backgrounds. Many of those with degrees had majored in English and education, but almost every major subject field was represented.

Past work experience may be helpful in a general way. Agency managers look with favor on applicants who have held jobs that involved dealing with people. But, like educational requirements, there is no specific employment route to life insurance selling. Evidence of this is found in an analysis of jobs held by the women agents surveyed before they became life underwriters. Among these women were some who had been clerks, typists, receptionists, bookkeepers, secretaries, and salespersons. From the professional ranks came accountants, dietitians, dentists,

hygienists, lawyers, librarians, social workers, statisticians, and many teachers. Women moved to careers in life underwriting from jobs in banks, factories, on newspapers, in government, and from other jobs in insurance. They came from managerial and executive posts, from the Armed Forces, from their own businesses. Some entered this field directly from college; many were housewives with no previous work history.

Unlike many other fields of work, life insurance selling is open to mature women as well as to younger women, since experience, stability, good judgment, and a sense of responsibility are recognized as valuable characteristics. Data available from the responses of the NALU women members indicate that mature women are recruited as life insurance agents. About 7 out of 10 of these women became life underwriters at or after age 35, more than 2 out of 5 were at least 40, and almost 1 out of 12 was at least 50 years old when she first embarked on this career.

Training and Educational Opportunities

Many types of training and educational programs are currently available to life insurance underwriters. "Precontract" training has been introduced in recent years and is becoming increasingly widespread. It is generally a brief program, lasting fewer than 25 hours and including classroom study and some field work. This exploratory training is designed both to enable agency managers to evaluate applicants and to provide applicants with a more realistic understanding of the nature of the work.

Life insurance companies have a compulsory basic training course for their new agents, which is generally conducted at the agency level. These courses may be fairly brief or take up to a year to complete. At this stage of training, agents study the needs for and the characteristics of different kinds of life insurance, and they learn to conduct sales interviews, develop lists of prospects, and plan their own work schedules.

Intermediate or followup training offered by companies is not always compulsory; often the underwriter must be recommended for such training. Advanced company training is usually limited to "select" agents who meet specified production and other qualifications.

The Life Underwriters Training Council, founded in 1947 by agent and management organizations, offers a 2-year classroom training program at an intermediate level. The courses emphasize practical selling techniques and cover many phases of life insurance selling. Students attend classes for $2\frac{1}{2}$ hours for 25 weeks of each of the 2 years, generally from October to May. Instructors are usually successful local life underwriters and agency or home office officials. During the 1959-60 school year, classes were offered in 590 cities and were attended by almost 20,000 students, including 160 women.

Two universities, Purdue and Southern Methodist, offer Insurance Marketing Institutes. Most of the students are first-year underwriters. The programs take about a year to complete and include several 4-week periods of classroom work on campus alternating with several months of supervised selling experience in the student's agency. The Institutes also conduct brief seminars throughout the country, including seminars held especially for women underwriters at which an outstanding woman underwriter is invited to join the university teaching staff.

The American College of Life Underwriters, founded by the NALU in 1927 to promote high educational standards, has established an educational program for underwriters consisting of a comprehensive course of study usually extending over a period of at least 4 years. It involves college-level study to qualify a person to pass five comprehensive examinations in insurance and related fields.

Candidates who pass all examinations and have at least 3 years of insurance experience are awarded the title of Chartered Life Underwriter (C. L. U.),

the highest educational distinction and a symbol of professional achievement in the industry. A total of 7,989 persons, including 157 women, had received this award by the end of 1959. Many companies finance the cost of C. L. U. study entirely or in part.

Advancement

Life underwriting is an occupational field which offers great opportunity for increasing earnings, even without moving on to another position. The usual line of advancement for those with leadership and administrative abilities is to assistant manager, then manager of a local branch, and then office executive posts. Or, underwriters may establish their own agencies and become general agents. Very few women, however, are general agents who own their own businesses. A few have moved from life underwriting to supervisory agency or executive home office positions, but these shifts are also exceptional.

Employment Outlook

All indicators point to a continued rise in life insurance sales and, therefore, to a continued need for additional life insurance agents. There is still a vast potential market among people who have no life insurance or who believe they are not adequately covered by their present insurance. Rising population and income levels will further expand this market.

Turnover among life insurance underwriters is quite high, and replacement needs for those who leave life insurance selling create many opportunities for new personnel to enter the field. However, many companies and their agencies have become very selective in an effort to reduce turnover. It is not uncommon for agency managers to interview many applicants in order to place a few agents under contract.

Although the industry seeks agents assiduously, efforts to recruit women are much less vigorous than those to recruit men. However, experience shows that a woman who has become a life underwriter is in no way at a disadvantage in pursuing this career,

Earnings and Working Conditions

Insurance selling is one of the fields of work in which women are compensated at the same rate as men, since compensation of experienced life underwriters is by commission and, therefore, directly related to sales.

There are many variations in the schedule of commissions among the different companies. First-year commissions for the more common insurance policies may run about 50 percent of the premium; renewal commissions may then be about 5 percent of the premiums for each of the following nine years. It is not uncommon for different companies to have lower or higher first-year commissions with corresponding differences in amount and duration of subsequent commissions. Over a period of years, these differences tend to even out. After renewal commissions cease, some companies pay a small annual service fee as long as the policy is in force.

Debit or combination agents also earn commissions against their "debit," which is the sum of the weekly and monthly premiums they collect. Some companies have guaranteed minimum earnings for servicing a debit. Debit agents' earnings from servicing debits range from about 10 to 15 percent of the weekly premiums and 6 to 8 percent of the monthly premiums.

Renewal commissions, which build up after a few years of selling, constitute a fairly important part of the earnings of life underwriters. Earnings from renewals supplement commissions from the sale of new policies and add to current income without requiring much additional expenditure of the agent's time and effort. They provide a continuing source of income in periods when new sales may drop off because of personal circumstances, such as illness, or because of unfavorable economic conditions.

No comprehensive data are available on the income of life underwriters, but earnings are known to have an extremely wide range. Some indication of what may be achieved by women life underwriters is available from data for survey respondents as shown below.

Income from insurance sales	Percent of respondents
Total	100
Under $2,500	14
$2,500 - $4,999	29
$5,000 - $9,999	41
$10,000 - $14,999	9
$15,000 and over	7

Among those with lower incomes were some part-time underwriters, some who had managerial or other responsibilities, a good number who had been selling insurance for less than 3 years, and a few who were tapering off their sales activity because of age.

About 80 percent of all new agents, but probably a smaller proportion of women agents, are financed by their companies for periods of from one to three years. Financing may take the form of a simple advance against future commissions, an advance plus a nonrepayable training allowance, or a straight salary. Generally, minimum sales levels must be maintained.

Through their branch offices and general agencies, life insurance companies typically, but not uniformly, provide their agents with office space and supplies, clerical assistance, promotional materials, postage, and some financing of their educational costs. Most underwriters, however, incur additional expenses in connection with selling insurance. . These may include a car, office space in the home, additional clerical help, and attendance at conventions. For the majority of the experienced agents, unreimbursed expenses are estimated at not more than 25 percent of earnings and are often considerably less.

Most full-time agents are covered by one or more types of benefit programs, including group life and health insurance and pension plans, which the companies may finance entirely but more often only partially. Coverage and extent of benefits may depend on meeting certain production requirements.

It is often emphasized that life underwriters are independent operators. While there is flexibility in the number and schedule of hours which agents work, as long as their production is acceptable to the company, in actual practice there is considerable correlation between hours and earnings, at least among NALU women members surveyed. Those who reported higher earnings generally worked longer hours. The great majority of life underwriters conduct some of their selling and much of their related work during evening and weekend hours.

EMPLOYMENT OUTLOOK FOR INDUSTRIAL TRAFFIC MANAGERS*

by Clare S. Frisby

Traffic managers and their assistants arrange for transportation of raw materials, equipment, and finished products to and from industrial and business firms. It is their job to see that products bought and sold by their employers are shipped in a way that will insure prompt and safe delivery and at the same time keep costs as low as possible. After taking into consideration the kind and amount of goods to be shipped, the time when delivery is needed, and other factors, they choose the type of transportation--water, highway, rail, air, or pipeline--the route, and finally the particular "carrier," or transportation company, which would be best to use for each shipment. (Traffic managers employed by railroads, airlines, trucking firms, and other transportation companies, who are chiefly concerned with attracting business to their firms, are not covered by this statement.)

The duties of industrial traffic managers and their assistants range from routine tasks, e.g., checking freight bills, to matters involving major planning and policymaking, such as deciding whether the company should buy and operate its own fleet of trucks. Other major duties include ascertaining the freight classifications and rates which apply to goods shipped, routing and tracing shipments, arranging with carriers for transportation services, preparing bills of lading and other shipping documents, and han-

*This article is one of a series of reports on fields of work which were not covered in the 1959 edition of the Occupational Outlook Handbook. It is part of the Bureau's continuing program of occupational research.

A traffic manager decides whether his company should purchase a new fleet of trucks

dling claims for lost or damaged goods. In addition, traffic managers are responsible for maintaining records not only of shipments but also of freight rates, commodity classifications, and applicable government regulations.

Some traffic managers have responsibility for the packaging of shipments, and for their companies' warehouse facilities and transportation equipment. In a few companies--usually very large ones--the traffic manager may also have responsibility for research activities related to the shipping or storage of goods--for example, he may design shipping containers for fragile products.

In small companies, or in firms without separate traffic departments, arrangements for transporting incoming goods may be made by the purchasing department--those for outgoing shipments, by personnel in the sales department. The employees who handle transportation arrangements in such firms must have a broad knowledge of the transportation field, but they do not usually have the title "traffic manager."

Since many aspects of transportation are subject to Federal, State, and local government regulations, traffic managers and their assistants must know about these and any other legal matters which apply to their companies' shipping operations. Some traffic managers are qualified to represent their companies before ratemaking and regulatory bodies--including the Interstate Commerce Commission, State commissions, and local traffic bureaus--in order to request or oppose changes in rates, commodity classifications, or types of service provided by carriers.

A traffic manager checks the routing and delivery schedules with a carrier representative

Some shipments require a combination of transportation facilities

Where Employed

Altogether, probably fewer than 15,000 persons held jobs as industrial traffic managers in 1960. The majority were employed by manufacturing firms, although some worked for stores and other types of establishments. A few traffic managers are in business for themselves, acting as consultants on transportation problems for various clients. Most traffic managers are men.

Training, Other Qualifications, and Advancement

A college education is becoming increasingly important for work in industrial traffic management. It is still possible, however, for employees with a high school education to qualify for

traffic-manager positions on the basis of their previous experience in transportation work. In selecting college graduates for trainee positions, some employers prefer to hire graduates of business administration who have majored in transportation; others prefer liberal arts graduates who have had courses in transportation, management, economics, statistics, marketing, or commercial law.

The first jobs of new traffic department employees are often in shipping rooms, where they gain experience in routing shipments and preparing bills of lading and other shipping forms, or in general traffic offices, where they may do clerical work such as filing schedules of freight rates and calculating freight charges. After gaining experience in various routine tasks, employees may be advanced to more technical work such as analysis of rates and transportation statistics. After further experience, a competent worker may advance to a supervisory position, such as supervisor of rates and routes. For the most competent, promotion to assistant manager, and eventually to manager, is possible.

Workers in traffic departments may prepare themselves for advancement by participating in on-the-job training programs, by taking courses in colleges, universities, and vocational schools, or attending seminars sponsored by various private organizations. To be licensed to argue cases before the Interstate Commerce Commission, a traffic manager must generally have had at least 2 years of college training as well as experience in traffic work--especially in interpreting and applying freight rates and other regulations. A certificate of professional competence in traffic management work is issued to persons who pass the transportation examinations given by the American Society of Traffic and Transportation, Inc.

Employment Outlook

A steady increase in employment in this small occupation can be expected during the 1960's. Some large companies will probably follow the example set by many corporations and reorganize their shipping and receiving activities into separate traffic departments, with traffic managers in charge.

Among the factors contributing to the favorable outlook for traffic managers and their assistants are the growing emphasis in many industries on efficient management of transportation activities, and the trend toward procuring raw materials and finished products from more and more remote places and distributing them to increasingly wider markets. Since transportation costs are a major factor in the price of many items, companies are becoming increasingly concerned with economies in shipping. Undoubtedly, there will be strong demand for specialists who know how to classify products so as to obtain the lowest possible freight rates, choose the carriers which are best able to handle each shipment, and otherwise protect their companies from excessive shipping expenses.

Although college training will probably be emphasized increasingly for entry jobs, experience and demonstrated ability in the fields just indicated will remain the most important factors in qualifying for promotion, especially to high level traffic management positions.

Earnings and Working Conditions

Young men with college degrees who started as business trainees in the traffic departments of large industrial firms often received annual salaries of about $5,000 in 1960, according to the limited data available. Many beginners with less education received lower salaries.

Earnings of experienced traffic managers are related generally to the volume of their companies' sales and also to the amount of their transportation costs. The average (median) salary of traffic managers in companies with transportation costs totaling less

Traffic managers send shipments by air when necessary to insure fast delivery

than $500,000 annually was about $8,000 in 1959, according to a private survey. In companies where transportation costs ranged between $4 million and $10 million, the average was approximately $14,000. In firms where these costs were higher, some traffic executives earned considerably more than $20,000.

Traffic department employees usually work the standard workweek of their companies--generally from 35 to 40 hours. Those in particularly responsible jobs may have to spend some time outside regular working hours preparing reports, attending meetings, and traveling to hearings before State and Federal regulatory agencies.

SALARIES OF WHITE-COLLAR WORKERS, WINTER 1959-60

The first of a series of nationwide studies of salaries in a number of selected professional, administrative, technical, and clerical occupations was recently released by the Bureau of Labor Statistics.

Charts 1 and 2 and the table summarize the salary information obtained by the survey, as of the winter of 1959-60. The small vertical lines indicate the average (median) salary in each occupation, and the horizontal lines show the range of the salaries of the middle half of the workers in that occupation. For example, chart 1 shows that junior draftsmen had an average weekly salary of $89, and that half of them earned from $79 to $101 a week. To put it another way, a fourth earned less than $79 and a fourth earned more than $101.

The occupations surveyed were in the following major fields: Accounting, legal, engineering and scientific, drafting, personnel management, clerical supervision, and clerical. Data were collected from establishments employing 100 or more workers in metropolitan areas in the following industrial classifications: Manufacturing; transportation, communication, electric, gas, and sanitary services; wholesale and retail trade; finance, insurance, and real estate; engineering and architectural services; and research, development, and testing laboratories.

For each occupation, the study set up from one to seven "levels," based on the duties and responsibilities of the positions involved.[1] In professional fields, these levels start at the trainee level of work typically requiring a college degree and extend through to levels which require a high degree of experience and responsibility and a high level

[1] Occupational descriptions used in this survey are included in the bulletin described at the end of this article.

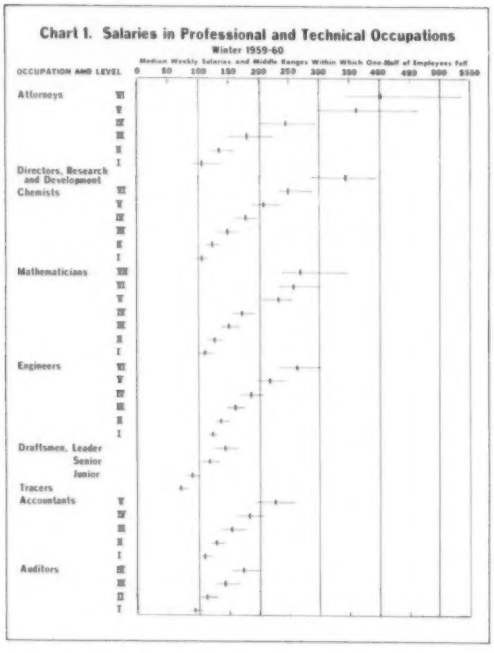


Chart 1. Salaries in Professional and Technical Occupations
Winter 1959-60
Median Weekly Salaries and Middle Ranges Within Which One-Half of Employees Fell
0 50 100 150 200 250 300 350 400 450 500 $550
OCCUPATION AND LEVEL
Attorneys VI V IV III II I
Directors, Research and Development
Chemists VI V IV III II I
Mathematicians VII VI V IV III II I
Engineers VI V IV III II I
Draftsmen, Leader
Senior
Junior
Tracers
Accountants V IV III II I
Auditors III II I

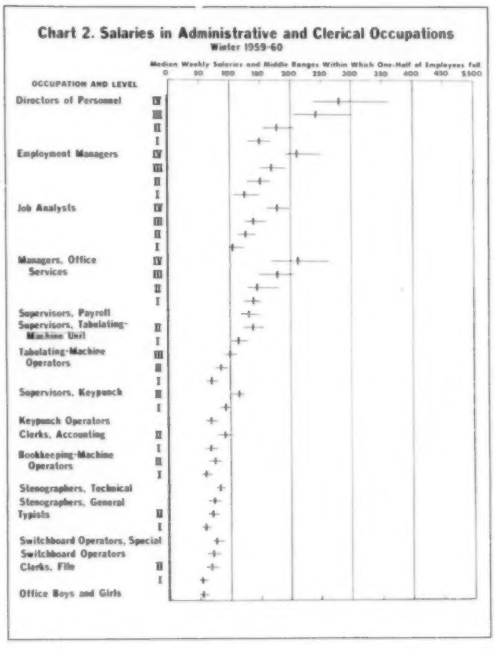


Chart 2. Salaries in Administrative and Clerical Occupations
Winter 1959-60
Median Weekly Salaries and Middle Ranges Within Which One-Half of Employees Fell
0 50 100 150 200 250 300 350 400 450 $500
OCCUPATION AND LEVEL
Directors of Personnel IV III II I
Employment Managers IV III II I
Job Analysts IV III II I
Managers, Office Services IV III II I
Supervisors, Payroll
Supervisors, Tabulating-Machine Unit II I
Tabulating-Machine Operators III II I
Supervisors, Keypunch II I
Keypunch Operators
Clerks, Accounting II I
Bookkeeping-Machine Operators II I
Stenographers, Technical
Stenographers, General
Typists II I
Switchboard Operators, Special
Switchboard Operators
Clerks, File II I
Office Boys and Girls

Average weekly salaries for selected professional and administrative occupations, winter 1959-60

Occupation and level	Average weekly salaries (standard)[1]		Occupation and level	Average weekly salaries (standard)[1]	
	Median	Range for middle half		Median	Range for middle half
Accountants and Auditors			**Personnel Management (Con.)**		
Accountants I	$110	$102--122	Employment managers IV	$212	$192--253
Accountants II	129	118--143			
Accountants III	155	136--178	Directors of personnel I	149	130--168
Accountants IV	185	162--208	Directors of personnel II	179	156--205
Accountants V	228	193--259	Directors of personnel III	243	206--302
			Directors of personnel IV	281	237--361
Auditors I	93	85--104			
Auditors II	113	101--130			
Auditors III	143	127--165	**Clerical Supervisory**		
Auditors IV	174	154--198			
			Managers, office services I	140	123--151
			Managers, office services II	146	129--181
Attorneys			Managers, office services III	179	148--206
			Managers, office services IV	213	169--264
Attorneys I	106	91--137			
Attorneys II	136	120--158	Supervisors, keypunch I	93	83--102
Attorneys III	181	150--223	Supervisors, keypunch II	115	100--124
Attorneys IV	246	202--296			
Attorneys V	362	298--464	Supervisors, payroll	131	117--151
Attorneys VI	403	341--536			
			Supervisors, tabulating-machine unit I	115	101--130
Engineers and Scientists			Supervisors, tabulating-machine unit II	138	121--157
Chemists I	105	97--114			
Chemists II	122	110--135			
Chemists III	148	132--165	**Draftsmen**		
Chemists IV	179	161--198			
Chemists V	208	188--236	Draftsmen, junior	89	79--101
Chemists VI	249	234--288	Draftsmen, senior	118	105--134
			Draftsmen, leader	144	126--164
Engineers I	123	115--130	Tracers	70	63-- 81
Engineers II	137	127--150			
Engineers III	160	146--176			
Engineers IV	187	170--206	**Clerical**		
Engineers V	218	197--245			
Engineers VI	264	235--302	Bookkeeping-machine operators I	60	53-- 69
			Bookkeeping-machine operators, II	75	65-- 86
Mathematicians I	110	98--122	Clerks, accounting I	68	58-- 79
Mathematicians II	127	116--141	Clerks, accounting II	92	79--106
Mathematicians III	150	137--167	Clerks, file I	54	48-- 62
Mathematicians IV	172	156--191	Clerks, file II	69	60-- 80
Mathematicians V	233	203--253			
Mathematicians VI	257	232--300	Keypunch operators	69	60-- 80
Mathematicians VII	269	238--346	Office boys or girls	55	49-- 63
			Stenographers, general	74	64-- 85
Directors, research and development	344	286--395	Stenographers, technical	84	77-- 91
			Switchboard operators	72	62-- 83
			Switchboard operators, special	77	71-- 89
Personnel Management			Tabulating-machine operators I	70	61-- 80
Job analysts I	106	99--123	Tabulating-machine operators II	85	75-- 96
Job analysts II	127	113--143	Tabulating-machine operators III	101	91--112
Job analysts III	140	126--160	Typists I	60	53-- 67
Job analysts IV	179	161--199	Typists II	71	63-- 81
Employment managers I	125	108--149			
Employment managers II	151	128--168			
Employment managers III	169	151--193			

[1] Standard hours reflect the workweek for which employees receive their regular straight-time salaries and the standard salaries correspond to these weekly hours. Salaries reported on an annual monthly basis were converted to weekly salaries by dividing by factors 52.1 or 4.33, respectively.

of supervisory duties. For example, a mathematician I, according to the survey definition, "....applies a variety of standard mathematical techniques in carrying out assignments which are confined to a few related processes rather than to the full sequence of steps in recognizable problems. Supervision is close; methods and computing instructions are explained by the supervisor, and there is little opportunity for the exercise of mathematical judgment...." At the upper extreme, a mathematician VIII "plans, coordinates, and executes highly complex mathematical research or its applications to projects and programs of broad scope and importance, or provides high-level consultation and advice to top technical and administrative personnel within the company. Incumbents typically serve as the top mathematical consultant to a laboratory or other organization on programs which constitute one of the major objectives of the organization but in which several sciences contribute and mathematics is only one approach...." Similar descriptions were used for each level of job in the other occupations studied.

Average (median) weekly salaries for the various types and levels of jobs studied ranged, on a national basis, from $54 for file clerks performing routine filing to $403 for attorneys holding such positions as top legal advisers heading a staff of attorneys. (See tabulation.)

In terms of annual salaries, averages for the various categories of jobs ranged from about $3,000 to $23,000:

Annual salary rates	Examples of job categories
Under $3,500	File clerks I, office boys and girls, typists I
$3,500 and under $5,000	Accounting clerks, stenographers, typists II
$5,000 and under $7,500	Levels I and II of accountants, attorneys, chemists, engineers, and mathematicians
$7,500 and under $10,000	Directors of personnel I and II; levels III and IV of auditors, accountants, chemists, engineers, and mathematicians
$10,000 and under $12,500	Level V of accountants, chemists, engineers, and mathematicians; level IV of employment managers and managers of office services
$12,500 and under $15,000	Level VI of chemists, engineers, and mathematicians; attorneys IV, directors of personnel III
$15,000 and under $17,500	Directors of personnel IV
$17,500 and over	Attorneys V and VI, directors of research and development

Six levels of engineers and chemists and seven levels of mathematicians were distinguished. For engineers, the largest group of professional workers studied, average weekly salaries ranged from $123 for beginning engineers to $264 for engineers at the highest level studied. Chemists in the corresponding levels averaged $105 and $249. At the lower levels, mathematicians were between engineers and chemists in salary, but at the top levels studied they averaged about the same as engineers.

Senior draftsmen (defined as fully experienced draftsmen) averaged $118 a week. There were many more draftsmen in this category than at any of the other three levels.

The five levels of accountants studied ranged from those with limited experience working under direct supervision to those directing staffs of accountants and in complete charge of accounting records of a large firm or a major section in a very large company. Accountants at the first level averaged $110 a week; those at the top level averaged $228. Among four levels of auditors, starting with the trainee level (work typically requiring a degree in

accounting or the equivalent), average weekly salaries ranged from $93 to $174.

In the field of personnel management, the study covered job analysts, employment managers, and directors of personnel, with four levels defined for each. Average weekly salaries in this field ranged from $106 for beginning job analysts to $281 for top-level directors of personnel. Job analysts at level 1 represented trainees in job analysis under direct supervision, whereas top-level directors of personnel were those responsible for personnel programs in large companies with a full range of plant, office, technical, professional, and administrative jobs.

Among clerical workers, general stenographers were by far the largest group studied. Their average pay, nationally, was $74 a week, which was near the midpoint in the range of average salaries for all clerical job categories studied. The highest paid group of clerical workers studied were tabulating-machine operators III, who averaged $101 a week. This group included only employees who are required to perform complex tabulating assignments by machine, without close supervision.

* * * * * * * *

The full 49-page study--National Survey of Professional, Administrative, Technical, and Clerical Pay, Winter 1959-60 (BLS Bull. 1286)--may be purchased for 35 cents a copy by sending check or money order to the Superintendent of Documents, Washington 25, D.C., or to any Bureau of Labor Statistics regional office.

COUNSELING AND GUIDANCE INSTITUTES, SUMMER 1961

The U. S. Office of Education has announced that 77 institutions of higher education will conduct short-term training institutes in counseling and guidance during the summer of 1961. About 2,850 secondary school personnel are expected to attend these institutes.

The summer institutes are designed, primarily, to meet the needs of secondary school personnel who are engaged, prior to enrollment at an institute, in counseling and guidance work and who need to improve their qualifications and knowledge of the field. To be eligible to attend the institutes, enrollees either must be employed by a secondary school and be spending at least half of their time in counseling and guidance or they must be regularly employed secondary school teachers with graduate-level preparation in counseling and guidance who are actually planning to do counseling and guidance work in high school. Public school enrollees receive $75 a week and $15 a week for each dependent. Private school enrollees receive no stipends, but attend the institutes without charge. No travel allowances are provided.

Persons interested in the counseling and guidance institutes in their vicinity may obtain additional information directly from the institute they wish to attend. Applications should not be made to the U. S. Office of Education.

The institutions which will conduct institutes in the summer of 1961 and other pertinent information are given below.

State	Institution	City	No. of Enrollees	Dates of Operation	Director
Ala.	University of Alabama	University	35	June 12--Aug. 11	Dr. Ralph M. Roberts
Alaska	See Oregon				
Ariz.	University of Arizona	Tuscon	30	June 12--July 15	Dr. Paul J. Danielson
Ark.	University of Arkansas	Fayetteville	35	June 5--July 14	Dr. Glenn A. Cole
Calif.	Los Angeles State College of Applied Arts and Sciences	Los Angeles	35	June 19--July 28	Dr. Harold L. Heywood
	Sacramento State College	Sacramento	30	June 19--July 28	Dr. James A. Saum
	San Diego State College	San Diego	33	June 26--Aug. 4	Dr. David D. Malcolm
	San Francisco State College	San Francisco	40	June 26--Aug. 4	Dr. Virginia Lee Block
	San Jose State College	San Jose	30	June 26--Aug. 4	Dr. C. Denny Auchard
Colo.	Colorado State University	Fort Collins	30	June 19--Aug. 11	Dr. Donald L. Frick
Conn.	University of Connecticut	Storrs	25	June 26--Aug. 4	Dr. Edward A. Wicas
Del.	See Maryland				
D.C.	See Maryland, Virginia				
Fla.	Florida State University	Tallahassee	40	June 19--July 28	Dr. Harold F. Cottingham
Ga.	University of Georgia	Athens	50	June 12--July 22	Dr. Emeliza Swain
Hawaii	University of Hawaii	Honolulu	30	June 26--Aug. 4	Dr. Francis E. Clark
Idaho	University of Idaho	Moscow	30	June 19--Aug. 11	Dr. Eugene Giles
Ill.	Illinois State Normal University	Normal	30	June 19--Aug. 12	Dr. Gary R. Walz
	Loyola University	Chicago	60	June 26--Aug. 20	Dr. Robert C. Nicolay
Ind.	Ball State Teachers College	Muncie	40	June 19--Aug. 11	Dr. Joseph W. Hollis
	University of Notre Dame	Notre Dame	30	June 19--July 28	Dr. Anthony C. Riccio
Iowa	Iowa State Teachers College	Cedar Falls	25	June 19--Aug. 11	Dr. Calvin J. Daane
	State University of Iowa	Iowa City	36	June 14--Aug. 8	Dr. Kenneth B. Hoyt
Kans.	Kansas State College of Pittsburg	Pittsburg	30	June 12--July 21	Dr. E. G. Kennedy
Ky.	University of Kentucky	Lexington	30	June 19--Aug. 11	Dr. Leslie L. Martin
La.	Northwestern State College of Louisiana	Natchitoches	30	June 5--Aug. 4	Dr. Ray McCoy

State	Institution	City	No. of Enrollees	Dates of Operation	Director
Maine N. H. Vt.	University of Maine	Orono	33	July 10--Aug. 18	Dr. Stanley L. Freeman, Jr.
Md. D. C. Del.	University of Maryland	College Park	30	June 26--Aug. 4	Dr. Richard H. Byrne
Mass.	Boston College	Chestnut Hill	40	June 26--Aug. 4	Rev. James F. Moynihan, S.J.
	Clark University	Worcester	30	July 3--Aug. 18	Dr. Vernon Jones
	Springfield College	Springfield	30	July 3--Aug. 11	Dr. Henry Paar
Mich.	Central Michigan University	Mount Pleasant	40	June 17--July 29	Mr. James C. Hayes
	Northern Michigan College	Marquette	25	July 3--Aug. 25	Dr. Wilbert A. Berg
	Western Michigan University	Kalamazoo	35	June 19--Aug. 11	Dr. Arthur J. Manske
Minn.	University of Minnesota, Duluth Branch	Duluth	30	July 17--Aug. 19	Dr. Gerald A. Gladstein
Miss.	Mississippi College	Clinton	30	June 19--July 29	Dr. Charles W. Scott
Mo.	University of Missouri	Columbia	50	June 12--Aug. 4	Dr. John L. Ferguson
Mont.	Montana State University	Missoula	25	June 12--Aug. 18	Dr. Robert E. Gorman
Nebr.	University of Nebraska	Lincoln	35	June 12--July 28	Dr. Robert W. Filbeck
Nev.	University of Nevada	Reno	30	June 12--Aug. 4	Dr. Truman M. Cheney
N. H.	See Maine				
N. J.	Rutgers, The State University	New Brunswick	30	July 3--Aug. 11	Mr. Leeman C. Joslin
N. Mex.	New Mexico State University of Agriculture, Engineering and Science	University Park	30	June 12--July 21	Dr. William C. Cross
N. Y.	Colgate University	Hamilton	30	June 26--Aug. 5	Dr. Thomas H. Lynch
	Fordham University	New York	30	July 5--Aug. 12	Dr. Genevieve B. Hunter
	Queens College, College of the City of New York	Flushing	50	July 1--Aug. 5	Dr. Phyllis C. Wilson
	St. Bernardine of Siena College	Loudonville	30	July 3--Aug. 11	Dr. Gladys C. Murphy
	Syracuse University	Syracuse	40	June 26--Aug. 18	Dr. William F. Anderson
	University of Buffalo	Buffalo	28	July 5--Aug. 12	Dr. Gilbert D. Moore
N. C.	North Carolina College at Durham	Durham	48	June 13--July 22	Dr. Ray Thompson
	State College of Agriculture and Engineering	Raleigh	25	June 12--July 21	Dr. Charles G. Morehead
	University of North Carolina at Chapel Hill	Chapel Hill	35	July 19--Aug. 29	Dr. Luther R. Taff
N. Dak.	See South Dakota				
Ohio	Kent State University	Kent	46	July 24--Aug. 25	Dr. Dwight L. Arnold
	Miami University	Oxford	30	June 19--Aug. 13	Dr. George E. Slinger
	Ohio University	Athens	40	July 16--Aug. 19	Dr. Donald A. Green
	University of Toledo	Toledo	45	June 12--July 21	Dr. Robert L. Gibson
Okla.	Oklahoma State University of Agriculture and Applied Science	Stillwater	32	June 5--Aug. 4	Dr. Harry K. Brobst
Oreg. Alaska	Oregon State System of Higher Education	Portland	40	June 19--Aug. 11	Dr. Harold W. Bernard
Pa.	Marywood College	Scranton	30	June 26--Aug. 4	Sister M. Michel, I.H.M.
	University of Pittsburgh	Pittsburgh	38	June 26--Aug. 4	Dr. George L. Fahey
Puerto Rico	University of Puerto Rico	Rio Piedras	25	June 12--July 21	Dr. Ana C. Caceres
R. I.	University of Rhode Island	Kingston	30	July 3--Aug. 11	Dr. S. Marvin Rife
S. C.	South Carolina State College	Orangeburg	40	June 12--July 22	Dr. Ashriel I. Mose
	University of South Carolina	Columbia	24	June 12--July 21	Dr. Lawrence E. Giles
S. Dak. N. Dak.	State University of South Dakota	Vermillion	30	June 12--Aug. 5	Dr. Joseph T. Fisher
Tenn.	Tennessee Agricultural and Industrial State University	Nashville	45	June 12--July 21	Dr. Montraville I. Claiborne
	University of Tennessee	Knoxville	33	June 12--Aug. 11	Dr. L. M. DeRidder

State	Institution	City	No. of Enrollees	Date of Operation	Director
Tex.	Austin College	Sherman	30	June 5--July 14	Dr. J. Carter Parkes
	East Texas State College	Commerce	34	June 5--July 15	Dr. William E. Truax, Jr.
	Prairie View Agricultural and Mechanical College	Prairie View	30	June 5--July 15	Dr. Ronald J. Rousseve
	Stephen F. Austin State College	Nacogdoches	30	June 4--July 14	Dr. Judson White
	University of Houston	Houston	35	June 6--July 17	Dr. Frank L. Stovall
Utah	Utah State University of Agriculture and Applied Science	Logan	30	June 19--July 21	Dr. Arden Frandsen
Vt.	See Maine				
Va. D.C.	College of William and Mary	Williamsburg	30	June 19--July 28	Dr. Deore J. Cannon
	Hampton Institute	Hampton	30	June 19--Aug. 12	Dr. Robert Roth
	University of Virginia	Charlottesville	30	July 3--Aug. 12	Dr. Richard L. Beard
	Virginia State College	Petersburg	30	June 19--Aug. 11	Dr. Elwood B. Boone
Wash.	Central Washington College of Education	Ellensburg	34	June 19--Aug. 11	Dr. Eldon E. Jacobsen
W. Va.	Marshall College	Huntington	25	June 5--Aug. 4	Dr. Clarke F. Hess
Wis.	University of Wisconsin, Milwaukee Campus	Milwaukee	30	June 19--Aug. 13	Dr. Henry Kaczkowski
Wyo.	University of Wyoming	Laramie	33	June 12--Aug. 18	Dr. Lyle L. Miller

U.S. GOVERNMENT PRINTING OFFICE: 1961 O - 582018

CUMULATIVE INDEX*

	Volume and Page No.
Appliance servicemen, outlook for	4/3/19
Astronomers	3/4/22
Biological sciences, women in	4/3/26
Business management careers	3/4/10
College enrollments	4/2/12
College graduates:	
Degrees granted to	4/4/24
Employment in industry	4/2/24
Outlook for	3/4/3
Construction workers	4/2/15
Counseling institutes, 1961	5/1/32
Counselors and teachers, training opportunities	4/3/24, 4/2/35
Craftsmen, outlook for	3/4/19
Dental laboratory technicians	4/1/18
Drivers (truck), wage rates	4/3/32
Earnings:	
Office and plant jobs	3/4/32, 4/4/30
Chemists and chemical engineers	4/1/33
Truckdrivers	4/3/32
White-collar workers	5/1/28
Engineers in industry	5/1/7
Federal pay rates	4/4/29
Hazardous occupations orders	4/4/27
High school graduates, employment of	4/2/3
Industrial traffic managers, outlook for	5/1/24
Insurance, careers for women in	5/1/18
Labor unions	4/4/3
Machining workers	3/4/29
Manpower in the 1960's	4/1/9
Mobility of young workers	4/3/3
Ocean study, opportunities in	4/1/28
Operatives, employment opportunities	4/3/7
Part-time jobs for women	4/1/10
Photographers, outlook for	5/1/15
Post office occupations	4/4/17
Purchasing agents, outlook for	4/2/9
School leavers - early work experience	4/1/22
Scientists in industry	5/1/7
Social security program	5/1/1
Students, training for	4/4/36
Summer jobs:	
For students	4/2/29
In Federal agencies	4/2/31
Unemployment insurance	4/1/3
Veteran, counseling and education	4/3/13
Women and girls, training for	4/4/9

Note: 4/3/19 means Volume 4, No. 3, page 19.

*This index will cover issues which supplement the 1959 edition of the Occupational Outlook Handbook. For index on previous issues of the Quarterly, see Vol. 3, No. 3, September 1959.

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON 25, D. C.

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300
(GPO)